8011-01

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-82371; File No. SR-OCC-2017-811]

Self-Regulatory Organizations; The Options Clearing Corporation; Notice of Filing of Advance Notice Concerning Proposed Changes to The Options Clearing Corporation's Margin Methodology

December 20, 2017.

Pursuant to Section 806(e)(1) of Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act, entitled Payment, Clearing and Settlement Supervision Act of 2010 ("Clearing Supervision Act")[1] and Rule 19b-4(n)(1)(i) under the Securities Exchange Act of 1934 ("Act"),[2] notice is hereby given that on November 13, 2017, The Options Clearing Corporation ("OCC") filed with the Securities and Exchange Commission ("Commission") an advance notice as described in Items I and II below, which Items have been prepared by OCC. The Commission is publishing this notice to solicit comments on the advance notice from interested persons.

I. Clearing Agency's Statement of the Terms of Substance of the Advance Notice

This advance notice is filed in connection with proposed changes to OCC's margin methodology to move away from the existing monthly data source provided by its current vendor and towards obtaining and incorporating daily price and returns (adjusted for any corporate actions) data of securities to estimate accurate margins.[3] This would be

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1 12 U.S.C. 5465(e)(1).

2 17 CFR 240.19b-4(n)(1)(i).

3 OCC also has filed a proposed rule change with the Commission in connection with the proposed changes. See SR-OCC-2017-022.

further supported by enhancing OCC's econometric model applied to different risk factors;[4] improving the sensitivity and stability of correlation estimates between them; and enhancing OCC's methodology around the treatment of securities with limited historical data. OCC also proposes to make a few clarifying and clean-up changes to its margin methodology unrelated to the proposed changes described above.

The proposed changes to OCC's Margins Methodology document are contained in confidential Exhibit 5 of the filing. The proposed changes are described in detail in Item III below. The proposed changes do not require any changes to the text of OCC's By-Laws or Rules. All terms with initial capitalization that are not otherwise defined herein have the same meaning as set forth in the OCC By-Laws and Rules.[5]

II. Clearing Agency's Statement of the Purpose of, and Statutory Basis for, the Advance Notice

In its filing with the Commission, OCC included statements concerning the purpose of and basis for the advance notice and discussed any comments it received on the advance notice. The text of these statements may be examined at the places specified in Item IV below. OCC has prepared summaries, set forth in sections A and B below, of the most significant aspects of these statements.

(A) Clearing Agency's Statement on Comments on the Advance Notice Received from Members, Participants or Others

Written comments were not and are not intended to be solicited with respect to the proposed rule change and none have been received. OCC will notify the Commission of any written comments received by OCC.

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4 The use of risk factors in OCC's margin methodology is discussed in more detail in the Description of the Proposed Change section below.

5 OCC's By-Laws and Rules can be found on OCC's public website: http://optionsclearing.com/about/publications/bylaws.jsp.

(B) Advance Notices Filed Pursuant to Section 806(e) of the Payment, Clearing, and Settlement Supervision Act

Description of the Proposed Change

Background

OCC's margin methodology, the System for Theoretical Analysis and Numerical Simulations ("STANS"), is OCC's proprietary risk management system that calculates Clearing Member margin requirements.[6] STANS utilizes large-scale Monte Carlo simulations to forecast price and volatility movements in determining a Clearing Member's margin requirement.[7] The STANS margin requirement is calculated at the portfolio level of Clearing Member accounts with positions in marginable securities and consists of an estimate of a 99% expected shortfall[8] over a two-day time horizon and an add-on margin charge for model risk (the concentration/dependence stress test charge).[9] The STANS methodology is used to measure the exposure of portfolios of options and futures cleared by OCC and cash instruments in margin collateral.

A "risk factor" within OCC's margin system may be defined as a product or attribute whose historical data is used to estimate and simulate the risk for an associated product. The majority of risk factors utilized in the STANS methodology are total returns on individual equity securities. Other risk factors considered include: returns on

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6 See Securities Exchange Act Release No. 53322 (February 15, 2006), 71 FR 9403 (February 23, 2006) (SR-OCC-2004-20).

7 See OCC Rule 601.

8 The expected shortfall component is established as the estimated average of potential losses higher than the 99% value at risk threshold. The term "value at risk" or "VaR" refers to a statistical technique that, generally speaking, is used in risk management to measure the potential risk of loss for a given set of assets over a particular time horizon.

9 A detailed description of the STANS methodology is available at http://optionsclearing.com/risk-management/margins/.

equity indexes; returns on implied volatility[10] risk factors that are a set of nine chosen volatility pivots per product;[11] changes in foreign exchange rates; and changes in model parameters that sufficiently capture the model dynamics from a larger set of data.

Under OCC's current margin methodology, OCC obtains monthly price data for most of its equity-based products[12] from a widely used industry vendor. This data arrives around the second week of every month in arrears and requires a maximum of about four weeks for OCC to process the data after any clean up and reruns as may be required prior to installing into OCC's margin system. As a result, correlations and statistical parameters for risk factors at any point in time represent back-dated data and therefore may not be representative of the most recent market data. In the absence of daily updates, OCC employs an approach where one or many identified market proxies (or "scale-factors") are used to incorporate day-to-day market volatility across all associated

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10 Generally speaking, the implied volatility of an option is a measure of the expected future volatility of the value of the option's annualized standard deviation of the price of the underlying security, index, or future at exercise, which is reflected in the current option premium in the market. Using the Black-Scholes options pricing model, the implied volatility is the standard deviation of the underlying asset price necessary to arrive at the market price of an option of a given strike, time to maturity, underlying asset price and given the current risk-free rate. In effect, the implied volatility is responsible for that portion of the premium that cannot be explained by the then-current intrinsic value (i.e., the difference between the price of the underlying and the exercise price of the option) of the option, discounted to reflect its time value.

11 In December 2015, the Commission approved a proposed rule change and issued a Notice of No Objection to an advance notice filing by OCC to its modify margin methodology by more broadly incorporating variations in implied volatility within STANS. See Securities Exchange Act Release No. 34-76781 (December 28, 2015), 81 FR 135 (January 4, 2016) (SR-OCC-2015-016) and Securities Exchange Act Release No. 34-76548 (December 3, 2015), 80 FR 76602 (December 9, 2015) (SR-OCC-2015-804).

12 The securities underlying these products are also known as risk factors within OCC's margin system.

asset classes throughout.[13] The scale factor approach, however, assumes a perfect correlation of the volatilities between the security and its scale factor, which gives little room to capture the idiosyncratic risk of a given security and which may be different from the broad market risk represented by the scale factor.

In risk management, it is a common practice to establish a floor for volatility at a certain level in order to protect against procyclicality[14] in the model. OCC imposes a floor on volatility estimates for its equity-based products using a 500-day look back period. These monthly updates coupled with the dependency of margins on scale factors and the volatility floor can result in imprecise changes in margins charged to Clearing Members, specifically across periods of heavy volatility when the correlation between the risk factor and a scale factor fluctuate.

OCC's current methodology for estimating covariance and correlations between risk factors relies on the same monthly data described above, resulting in a similar lag

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13 Earlier this year, the Commission approved a proposed rule change, and issued a Notice of No Objection to an advance notice filing, by OCC which, among other things: (1) expanded the number of scale factors used for equity-based products to more accurately measure the relationship between current and long-run market volatility with proxies that correlate more closely to certain products carried within the equity asset class, and (2) applied relevant scale factors to the greater of (i) the estimated variance of 1-day return scenarios or (ii) the historical variance of the daily return scenarios of a particular instrument, as a floor to mitigate procyclicality. See Securities Exchange Act Release No. 80147 (March 3, 2017), 82 FR 13163 (March 9, 2017) (SR-OCC-2017-001) and Securities Exchange Act Release No. 80143 (March 2, 2017), 82 FR 13036 (March 8, 2017) (SR-OCC-2017-801).

14 A quality that is positively correlated with the overall state of the market is deemed to be "procyclical." For example, procyclicality may be evidenced by increasing margin or Clearing Fund requirements in times of stressed market conditions and low margin or Clearing Fund requirements when markets are calm. Hence, anti-procyclical features in a model are measures intended to prevent risk-based models from fluctuating too drastically in response to changing market conditions.

time between updates. In addition, correlation estimates are based off historical returns series, with estimates between a pair of risk factors being highly sensitive to the volatility of either risk factor in the chosen pair. The current approach therefore results in potentially less stable correlation estimates that may not be representative of current market conditions.

Finally, under OCC's existing margin methodology, theoretical price scenarios for "defaulting securities"[15] are simulated using uncorrelated return scenarios with an average zero return and a pre-specified volatility called "default variance." The default variance is estimated as the average of the top 25 percent quantile of the conditional variances of all securities. As a result, these default estimates may be impacted by extremely illiquid securities with discontinuous data. In addition, the default variance (and the associated scale factors used to scale up volatility) is also subject to sudden jumps with the monthly simulation installations across successive months because it is derived from monthly data updates, as opposed to daily updates, which are prone to wider fluctuations and are subject to adjustments using scale factors.

Proposed Changes

OCC proposes to modify its margin methodology by: (1) obtaining daily price data for equity products (including daily corporate action-adjusted returns of equities where price and thus returns of securities are adjusted for any dividends issued, stock splits, etc.) for use in the daily estimation of econometric model parameters; (2) enhancing its econometric model for updating statistical parameters (e.g., parameters concerning correlations or volatility) for all risk factors that reflect the most recent data

[15] Within the context of OCC's margin system, securities that do not have enough historical data for calibration are classified as "defaulting securities."

obtained; (3) improving the sensitivity and stability of correlation estimates across risk factors by using de-volatized[16] returns (but using a 500 day look back period); and (4) improving OCC's methodology related to the treatment of defaulting securities that would result in stable and realistic risk estimates for such securities.[17]

The purpose of the proposed changes is to enhance OCC's margin methodology to mitigate the issues described above that arise from the current monthly update and scale factor approach. Specifically, by introducing daily (as opposed to monthly) updates for price data (and thereby allowing for daily updates of statistical parameters in the model) and making other proposed model enhancements described herein, the proposed changes are designed to result in more accurate and responsive margin requirements and a model that is more stable and proactive during times of market volatility, with margins that are based off of the most recent market data. In addition, the proposed changes are intended to improve OCC's approach to estimating covariance and correlations between risk factors in an effort to achieve more stable and sensitive correlation estimations and improve OCC's methodology related to the treatment of defaulting securities by reducing the impact that illiquid securities with discontinuous data have on default variance estimates.

The proposed changes are described in further detail below.

1. *Daily Updates of Price Data*

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16 De-volatization is a process of normalizing historical data with the associated volatility thus enabling any comparison between different sets of data.

17 In addition to the proposed methodology changes described herein, OCC also would make some clarifying and clean-up changes, unrelated to the proposed changes described above, to update its margin methodology to reflect existing practices for the daily calibration of seasonal and non-seasonal energy models and the removal of methodology language for certain products that are no longer cleared by OCC.

OCC proposes to introduce daily updates for price data for equity products, including daily corporate action-adjusted returns of equities, Exchange Traded Funds ("ETFs"), Exchange Traded Notes ("ETNs") and certain indexes. The daily price data would be obtained from a widely used external vendor, as is the case with the current monthly updates. The purpose of the proposed change is to ensure that OCC's margin methodology is reliant on data that is more representative of current market conditions, thereby resulting in more accurate and responsive margin requirements.

As described above, OCC currently obtains price data for all securities on a monthly basis from a third party vendor. After obtaining the monthly price data, additional time is required for OCC to process the data prior to installing into OCC's margin system. As a result, correlations and statistical parameters for risk factors at any point in time represent back-dated data and therefore may not be representative of the most recent market data. To mitigate pro-cyclicality within its margin methodology in the absence of daily updates, OCC employs the use of scale-factors to incorporate day-to-day market volatility across all associated asset classes. While the scale factors help to reduce procyclicality in the model, the scale factors do not necessarily capture the idiosyncratic risks of a given security, which may be different from the broad market risk represented by the scale factor.

OCC proposes to address these issues associated with its current margin methodology by eliminating its dependency on monthly price data, which arrives in arrears and requires additional time for OCC to process prior to installing into OCC's margin system, through the introduction of daily updates for price data for equity products. The introduction of daily price updates would enable OCC's margin

methodology to better capture both market as well idiosyncratic risk by allowing for daily updates to the parameters associated with of the econometric model (discussed below) that capture the risk associated with a particular product, and therefore ensure that OCC's margin requirements are based on more current market conditions. As a result, OCC would also reduce its reliance on the use of scale factors to incorporate day-to-day market volatility, which, as noted above, give little room to capture the idiosyncratic risk of a given security and which may be different from the broad market risk represented by the scale factor. In addition, the processing time between receipt of the data and installation into the margin system would be reduced as the data review and processing for daily prices would be incorporated into OCC's daily price editing process.

2. *Proposed Enhancements to the Econometric Model*

In addition to introducing daily updates for price and corporate action-adjusted returns data, OCC is proposing enhancements to its econometric model for calculating statistical parameters for all qualifying risk factors that reflect the most recent data obtained (e.g., OCC would be able to calculate parameters such as volatility and correlations on a daily basis using the new daily price data discussed above). Specifically, OCC proposes to enhance its econometric model by: (i) introducing daily updates for statistical parameters; (ii) introducing features in its econometric model that are designed to take into account asymmetry in the model used to forecast volatility associated with a risk factor ; (iii) modifying the statistical distribution used to model the returns of equity prices; (iv) introducing a second-day forecast for volatility into the model to estimate the two-day scenario distributions for risk factors; and (v) imposing a floor on volatility estimates using a 10-year look back period.

These proposed model enhancements are described in detail below.

i. Daily Updates for Statistical Parameters

Under the proposal, the statistical parameters for the model would be updated on a daily basis using the new daily price data obtained by OCC (as described in section 1 above).[18] As a result, OCC would no longer need to rely on scale factors to approximate day-to-day market volatility for equity-based products. Statistical parameters would be calibrated on daily basis, allowing OCC to calculate more accurate margin requirements that are representative of the most recent market data.

ii. Proposed Enhancements to Capture Asymmetry in Conditional Variance

In addition to the daily update of statistical parameters, OCC proposes to include new features in its econometric model that are designed to take into account asymmetry in the conditional variance process. The econometric model currently used in STANS for all risk factors is a GARCH(1,1) with Student's *t*-distributed innovations of logarithmic returns[19], which is a relatively straightforward and widely used model to forecast volatility.[20] The current approach for forecasting the conditional variance for a given risk factor does not, however, consider the asymmetric volatility phenomenon observed

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18 OCC notes that this change would apply to most risk factors with the exception of certain equity indexes, Treasury securities, and energy futures products, which are already updated on a daily basis.

19 The Student's *t*-distribution is a widely used statistical distribution to model the historical logarithmic price returns data of a security that allows for the presence of fat tails (aka kurtosis) or a non-zero conditional fourth moment.

20 See generally Tim Bollerslev, "Generalized Autoregressive Conditional Heteroskedasticity," Journal of Econometrics, 31(3), 307-327 (1986). The acronym "GARCH" refers to an econometric model that can be used to estimate volatility based on historical data. The general distinction between the "GARCH variance" and the "sample variance" for a given time series is that the GARCH variance uses the underlying time series data to forecast volatility.

in financial markets (also called the "leverage effect") where volatility is more sensitive and reactive to market downturns. As a result, OCC proposes to enhance its model by adding new features (i.e., incorporating asymmetry into its forecast volatility) designed to allow the conditional volatility forecast to be more sensitive to market downturns and thereby capture the most significant dynamics of the relationship between price and volatility observed in financial markets. OCC believes the proposed enhancement would result in more accurate and responsive margin requirements, particularly in market downturns.

iii. Proposed Change in Statistical Distribution

OCC further proposes to change the statistical distribution used to model the returns of equity prices. OCC's current methodology uses a fat tailed distribution[21] (the Student's *t*-distribution) to model returns; however, price scenarios generated using very large log-return scenarios (positive) that follow this distribution can approach infinity and could potentially result in excessively large price jumps, a known limitation of this distribution. OCC proposes to move to a more defined distribution (Standardized Normal Reciprocal Inverse Gaussian or NRIG) for modeling returns, which OCC believes would more appropriately simulate future returns based on the historical price data for the products in question (i.e., it has a better "goodness of fit"[22] to the historical data) and allows for more appropriate modeling of fat tails. As a result, OCC believes that the proposed change would lead to more consistent treatment of log returns both on the upside as well as downside of the distribution.

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21 A data set with a "fat tail" is one in which extreme price returns have a higher probability of occurrence than would be the case in a normal distribution.

22 The goodness of fit of a statistical model describes the extent to which observed data match the values generated by the model.

iv. Second Day Volatility Forecast

OCC also proposes to introduce a second-day forecast for volatility into the model to estimate the two-day scenario distributions for risk factors.[23] Under the current methodology, OCC typically uses a two-day horizon to determine its risk exposure to a given portfolio. This is done by simulating 10,000 theoretical price scenarios for the two-day horizon using a one-day forecast conditional variance, and the value at risk and expected shortfall components of the margin requirement are then determined from the simulated profit/loss distributions. These one-day and two-day returns scenarios are both simulated using the one-day forecast conditional variance estimate. This could lead to a risk factor's coverage differing substantially on volatile trading days. As a result, OCC proposes to introduce a second-day forecast variance for all equity-based risk factors. The second-day conditional variance forecast would be estimated for each of the 10,000 Monte Carlo returns scenarios, resulting in more accurately estimated two-day scenario distributions, and therefore more accurate and responsive margin requirements.

v. Anti-Procyclical Floor for Volatility Estimates

Additionally, OCC proposes to modify its floor for volatility estimates. OCC currently imposes a floor on volatility estimates for its equity-based products using a 500-day look back period. OCC proposes to extend this look back period to 10-years (2520 days) in the enhanced model and to apply this floor to volatility estimates for other products (excluding implied volatility risk factor scenarios). The proposed model described herein is calibrated from historical data, and as a result, the level of the

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[23] This proposed change would not apply to STANS implied volatility scenario risk factors. For those risk factors, OCC's existing methodology would continue to apply. See supra note 11.

volatilities generated by the model will vary from time to time. OCC is therefore proposing to establish a volatility floor for the model using a 10-year look back period to reduce the risk of procyclicality in its margin model. OCC believes that using a longer 10-year look back period will ensure that OCC captures sufficient historical events/market shocks in the calculation of its anti-procyclical floor. The 10-year look back period also is in line with requirements of the European Market Infrastructure Regulation (including regulations thereunder)[24] concerning the calibration of risk factors.

3. *Proposed Enhancements to Correlation Estimates*

As described above, OCC's current methodology for estimating covariance and correlations between risk factors relies on the same monthly price data feeding the econometric model, resulting in a similar lag time between updates. In addition, correlation estimates are based off historical returns series, with estimates between a pair of risk factors being highly sensitive to the volatility of either risk factors in the chosen pair. The current approach therefore results in correlation estimates being sensitive to volatile historical data.

In order to address these limitations, OCC proposes to enhance its methodology for calculating correlation estimates by moving to a daily process for updating correlations (with a minimum of one week's lag) to ensure Clearing Member account margins are more current and thus more accurate. Moreover, OCC proposes to enhance

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[24] Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories. Specifically, the proposed floor would be compliant with Article 28 of Commission Delegated Regulation (EU) No. 153/2013 of 19 December 2012 Supplementing Regulation (EU) No. 648/2012 of the European Parliament and of the Council with regard to Regulatory Technical Standards on Requirements for Central Counterparties (the "Regulatory Technical Standards").

its approach to modeling correlation estimates by de-volatizing[25] the returns series to estimate the correlations. Under the proposed approach, OCC would first consider the returns excess of the mean (i.e., the average estimated from historical data sample) and then further scale them by the corresponding estimated conditional variances. OCC believes that by using de-volatized returns, which is a widely suggested approach in relevant literature, it would lead to normalizing returns across a variety of asset classes and make the correlation estimator less sensitive to sudden market jumps and therefore more stable.

4. *Defaulting Securities Methodology*

Finally, OCC proposes to enhance its methodology for estimating the defaulting variance in its model. OCC's margin system is dependent on market data to determine Clearing Member margin requirements. Securities that do not have enough historical data are classified as to be a "defaulting security" within OCC systems (e.g., IPO securities). As noted above, within current STANs systems, the theoretical price scenarios for defaulting securities are simulated using uncorrelated return scenarios with a zero mean and a default variance, with the default variance being estimated as the average of the top 25 percent quantile of the conditional variances of all securities. As a result, these default estimates may be impacted by extremely illiquid securities with discontinuous data. In addition, the default variance (and the associated scale factors used to scale up volatility) is also subject to sudden jumps with the monthly simulation installations across volatile months. To mitigate these concerns, OCC proposes to: (i) use only optionable equity securities to estimate the default variance; (ii) use a shorter time

[25] See supra note 16.

series to enable calibration of the model for all securities; and (iii) simulating default correlations with the driver Russell 2000 index ("RUT").

i. Proposed Modifications to Securities and Quantile Used in Estimation.

OCC proposes that only optionable equity securities, which are typically more liquid, be considered while estimating the default variance. This limitation would eliminate from the estimation almost all illiquid securities with discontinuous data that could contribute to high conditional variance estimates and thus a high default variance. In addition, OCC proposes to estimate the default variance as the lowest estimate of the top 10% of the floored conditional variance across the risk factors. This change in methodology is designed to ensure that while the estimate is aggressive it is also robust to the presence of outliers caused by a few extremely volatile securities that influence the location parameter of a distribution. Moreover, as a consequence of the daily updates described above, the default variances would change daily and there would be no scale factor to amplify the effect of the variance on risk factor coverage.

ii. Proposed Change in Time Series

In addition, OCC proposes to use a shorter time series to enable calibration of the model for all securities. Currently, OCC does not calibrate parameters for defaulting securities that have historical data of less than two years. OCC is proposing to shorten this time period to around 6 months (180 days) to enable calibration of the model for all securities within OCC systems. OCC believes that this shorter time series is sufficient to produce stable calibrated parameters.

iii. Proposed Default Correlation

Finally, OCC proposes that returns scenarios for defaulting securities, securities

with insufficient historical data, be simulated using a default correlation with the driver RUT.[26] The RUT Index is a small cap index and is hence a natural choice to represent most new issues that are small cap and deemed to be a "defaulting security." The default correlation is roughly equal to the median of all positively correlated securities with the index. Since 90% of the risk factors in OCC systems correlate positively to the RUT index, OCC would only consider those risk factors to determine the median. OCC believes that the median of the correlation distribution has been steady over a number of simulations and is therefore proposing that it replace the current methodology of simulating uncorrelated scenarios, which OCC believes is not a realistic approach.

Anticipated Effect on and Management of Risk

OCC believes that the proposed changes would reduce the nature and level of risk presented by OCC because they would result in a margin methodology that is more accurate, responsive, stable, and robust, thereby reducing risks to OCC, its Clearing Members, and the markets it serves.

As noted above, OCC's current margin methodology relies on monthly price data being obtained from a third party vendor. This data arrives monthly in arrears and requires additional time for OCC to process the data prior to installing into OCC's margin system. As a result, correlations and statistical parameters for risk factors at any point in time represent back-dated data and therefore may not be representative of the most recent

[26] OCC notes that, in certain limited circumstances where there are reasonable grounds backed by the existing return history to support an alternative approach in which the returns are strongly correlated with those of an existing risk factor (a "proxy") with a full price history, the Margins Methodology allows OCC's Financial Risk Management staff to construct a "conditional" simulation to override any default treatment that would have otherwise been applied to the defaulting security.

market data. To mitigate procyclicality within its margin methodology in the absence of daily updates, OCC employs a scale factor approach to incorporate day-to-day market volatility across all associated asset classes throughout.[27] For the reasons noted above, these monthly updates coupled with the dependency of margins on scale factors can result in imprecise changes in margins charged to Clearing Members, specifically across periods of heavy volatility.

OCC proposes to enhance its margin methodology to introduce daily updates for equity price data, thereby allowing for daily updates of statistical parameters in its margin model for most risk factors. In addition, the proposed changes would introduce features to the model to better account for the asymmetric volatility phenomenon observed in financial markets and allow for conditional volatility forecast to be more sensitive to market downturns. The proposed changes would also introduce a new statistical distribution for modeling equity price returns that OCC believes would have a better goodness of fit and would more appropriately account for fat tails. Moreover, the proposed changes would introduce a second-day volatility forecast into the model to provide for more accurate and timely estimations of its two-day scenario distributions. OCC also proposes to enhance its econometric model by establishing a volatility floor using a 10-year look back period to reduce procyclicality in the margin model. OCC believes the proposed changes would result in more accurate and responsive margin requirements and a model that is more stable and proactive during times of market volatility, with risk charges that are based off of most recent market data.

In addition, the proposed changes are intended to improve OCC's approach to

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[27] See supra note 13 and accompanying text.

estimating covariance and correlations between risk factors in an effort to achieve more stable and sensitive correlation estimations and improve OCC's methodology related to the treatment of defaulting securities by reducing the impact that illiquid securities with discontinuous data have on default variance estimates.

The proposed methodology changes would be used by OCC to calculate margin requirements designed to limit its credit exposures to participants, and OCC uses the margin it collects from a defaulting Clearing Member to protect other Clearing Members from losses that may result from such a default. As a result, OCC believes the proposed changes would result in the reduction of risk for OCC, its Clearing Members, and the markets it serves.

Clearing Member Outreach

OCC has discussed the proposed changes with its Financial Risk Advisory Council[28] at a meeting held on October 25, 2016. OCC also provided general updates to members at OCC Roundtable[29] meetings on June 20, 2017, and November 9, 2017. Clearing Members expressed interest in seeing how reactive margin changes would be under the proposal; however, there were no objections or significant concerns expressed regarding the proposed changes. OCC will provide at least 30-days of parallel reporting prior to implementation so that Clearing Members can see the impact of the proposed changes. In addition, OCC would publish an Information Memorandum to all Clearing

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28 The Financial Risk Advisory Council is a working group consisting of representatives of Clearing Members and exchanges formed by OCC to review and comment on various risk management proposals.

29 The OCC Roundtable was established to bring Clearing Members, exchanges and OCC together to discuss industry and operational issues. It is comprised of representatives of the senior OCC staff, participant exchanges and Clearing Members, representing the diversity of OCC's membership in industry segments, OCC-cleared volume, business type, operational structure and geography.

Members describing the proposed change and will provide additional periodic Information Memoranda updates prior to the implementation date. Additionally, OCC would perform targeted and direct outreach with Clearing Members that would be most impacted by the proposed changes to the margin methodology and OCC would work closely with such Clearing Members to coordinate the implementation and associated funding for such Clearing Members resulting from the proposed change.[30]

Consistency with the Payment, Clearing and Settlement Supervision Act

The stated purpose of the Clearing Supervision Act is to mitigate systemic risk in the financial system and promote financial stability by, among other things, promoting uniform risk management standards for systemically important financial market utilities and strengthening the liquidity of systemically important financial market utilities.[31] Section 805(a)(2) of the Clearing Supervision Act[32] also authorizes the Commission to prescribe risk management standards for the payment, clearing and settlement activities of designated clearing entities, like OCC, for which the Commission is the supervisory agency. Section 805(b) of the Clearing Supervision Act[33] states that the objectives and principles for risk management standards prescribed under Section 805(a) shall be to:

- promote robust risk management;
- promote safety and soundness;
- reduce systemic risks; and

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30 Specifically, OCC will discuss with those Clearing Members how they plan to satisfy any increase in their margin requirements associated with the proposed change.

31 12 U.S.C. 5461(b).

32 12 U.S.C. 5464(a)(2).

33 12 U.S.C. 5464(b).

- support the stability of the broader financial system.

The Commission has adopted risk management standards under Section 805(a)(2) of the Clearing Supervision Act and the Act, which include Commission Rules 17Ad-22(b)(1), (b)(2) and (e)(6).[34]

Rules 17Ad-22(b)(1) and (2)[35] require that a registered clearing agency that performs central counterparty services establish, implement, maintain and enforce written policies and procedures reasonably designed to, in part: (1) measure its credit exposures to its participants at least once a day and limit its exposures to potential losses from defaults by its participants under normal market conditions so that the operations of the clearing agency would not be disrupted and non-defaulting participants would not be exposed to losses that they cannot anticipate or control and (2) use margin requirements to limit its credit exposures to participants under normal market conditions and use risk-based models and parameters to set margin requirements.

As noted above, the proposed changes would introduce the use of daily price updates into OCC's margin methodology, which allows for daily updates to the statistical parameters in the model (e.g., parameters concerning volatility and correlation). These changes would be supported by a number of other risk-based enhancements to OCC's econometric model designed to: (i) more appropriately account for asymmetry in

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34 17 CFR 240. 17Ad-22. See Securities Exchange Act Release Nos. 68080 (October 22, 2012), 77 FR 66220 (November 2, 2012) (S7-08-11) ("Clearing Agency Standards"); 78961 (September 28, 2016, 81 FR 70786 (October 13, 2016) (S7-03-14) ("Standards for Covered Clearing Agencies"). The Standards for Covered Clearing Agencies became effective on December 12, 2016. OCC is a "covered clearing agency" as defined in Rule 17Ad-22(a)(5) and therefore OCC must comply with new section (e) of Rule 17Ad-22.

35 17 CFR 240.17Ad-22(b)(1) and (2).

conditional variance; (ii) more appropriately model the statistical distribution of price returns; (iii) provide for an anti-procyclical floor for volatility estimates based on a 10-year look back period; and (iv) more accurately model second-day volatility forecasts. Moreover, the proposed changes would improve OCC's approach to estimating covariance and correlations between risk factors in an effort to achieve more stable and sensitive correlation estimations and improve OCC's methodology related to the treatment of defaulting securities by reducing the impact that illiquid securities with discontinuous data have on default variance estimates.

OCC would use the risk-based model enhancements described herein to measure its credit exposures to its participants on a daily basis and determine margin requirements based on such calculations. The proposed enhancements concerning daily price updates, daily updates of statistical parameters, and to more appropriately account for asymmetry in conditional variance would result in more accurate and responsive margin requirements and a model that is more stable and proactive during times of market volatility, with margin charges that are based off of the most recent market data. In addition, the proposed modifications to extend the look back period for determining volatility estimates for equity-based products from 500 days to 10 years will help to ensure that OCC captures sufficient historical events/market shocks in the calculation of its anti-procyclical floor. Additionally, the proposed changes would enhance OCC's margin methodology for calculating correlation estimates by moving to a daily process for updating correlations (with a minimum of one week's lag) so that Clearing Member account margins are more current and thus more accurate and using de-volatized returns to normalize returns across a variety of asset classes and make the correlation estimator

less sensitive to sudden market jumps and therefore more stable. Finally, the proposed changes to OCC's methodology for the treatment of defaulting securities is designed to result in stable and realistic risk estimates for such securities The proposed changes are therefore designed to ensure that OCC sets margin requirements, using risk-based models and parameters, that would serve to limit OCC's exposures to potential losses from defaults by its participants under normal market conditions so that the operations of OCC would not be disrupted and non-defaulting participants would not be exposed to losses that they cannot anticipate or control. Accordingly, OCC believes the proposed changes are consistent with Rules 17Ad-22(b)(1) and (2).[36]

Rule 17Ad-22(e)(6)[37] further requires OCC to establish, implement, maintain and enforce written policies and procedures reasonably designed to cover its credit exposures to its participants by establishing a risk-based margin system that, among other things: (i) considers, and produces margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market; (ii) calculates margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default; and (iii) uses reliable sources of timely price data and uses procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

As described in detail above, the proposed changes are designed to ensure that, among other things, OCC's margin methodology: (i) more appropriately accounts for asymmetry in conditional variance; (ii) more appropriately models the statistical

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36 Id.

37 17 CFR 240.17Ad-2(e)(6).

distribution of price returns, (iii) more accurately models second-day volatility forecasts; (iv) improves OCC's approach to estimating covariance and correlations between risk factors to provide for stable and sensitive correlation estimations; and (v) improves OCC's methodology related to the treatment of defaulting securities by reducing the impact that illiquid securities with discontinuous data have on default variance estimates. These methodology enhancements would be used to calculate daily margin requirements for OCC's Clearing Members. In this way, the proposed changes are designed to consider, and produce margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market and to calculate margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default.

Moreover, the proposed changes would introduce daily updates for price data for equity products, including daily corporate action-adjusted returns of equities, ETFs, ETNs, and certain indexes. This daily price data would be obtained from a widely used and reliable industry vendor. In this way, the proposed changes would ensure that OCC uses reliable sources of timely price data in its margin methodology, which better reflect current market conditions than the current monthly updates, thereby resulting in more accurate and responsive margin requirements.

For these reasons, OCC believes that the proposed changes are consistent with Rule 17Ad-22(e)(6).[38]

III. Date of Effectiveness of the Advance Notice and Timing for Commission Action

The proposed change may be implemented if the Commission does not object to

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38 Id.

the proposed change within 60 days of the later of: (i) the date the proposed change was filed with the Commission or (ii) the date any additional information requested by the Commission is received. OCC shall not implement the proposed change if the Commission has any objection to the proposed change.

The Commission may extend the period for review by an additional 60 days if the proposed change raises novel or complex issues, subject to the Commission providing the clearing agency with prompt written notice of the extension. A proposed change may be implemented in less than 60 days from the date the advance notice is filed, or the date further information requested by the Commission is received, if the Commission notifies the clearing agency in writing that it does not object to the proposed change and authorizes the clearing agency to implement the proposed change on an earlier date, subject to any conditions imposed by the Commission.

OCC shall post notice on its website of proposed changes that are implemented.

The proposal shall not take effect until all regulatory actions required with respect to the proposal are completed.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing, including whether the advance notice is consistent with the Clearing Supervision Act. Comments may be submitted by any of the following methods:

Electronic Comments:

- Use the Commission's Internet comment form (http://www.sec.gov/rules/sro.shtml); or

- Send an e-mail to rule-comments@sec.gov. Please include File Number SR-OCC-2017-811 on the subject line.

Paper Comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549.

All submissions should refer to File Number SR-OCC-2017-811. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet website (http://www.sec.gov/rules/sro.shtml). Copies of the submission, all subsequent amendments, all written statements with respect to the advance notice that are filed with the Commission, and all written communications relating to the advance notice between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549 on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of OCC and on OCC's website at hhttps://www.theocc.com/about/publications/bylaws.jsp.

All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR-OCC-2017-811 and should be submitted on or before [INSERT DATE 21 DAYS FROM PUBLICATION IN THE FEDERAL REGISTER].

By the Commission.

Eduardo A. Aleman,

Assistant Secretary.

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